



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/645,963

08/22/2003

Preston Whitcomb

05689-016001

8398

26161 7590 02/13/2007  
FISH & RICHARDSON PC  
P.O. BOX 1022  
MINNEAPOLIS, MN 55440-1022

EXAMINER

ADAMS, GREGORY W

ART UNIT

PAPER NUMBER

3652

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
--	-----------	---------------

3 MONTHS

02/13/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/645,963	<b>Applicant(s)</b> WHITCOMB ET AL.	
	<b>Examiner</b> Gregory W. Adams	<b>Art Unit</b> 3652	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 December 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,6-15 and 17-27 is/are pending in the application.
- 4a) Of the above claim(s) 18-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,6-15, 17 and 25-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***General Comments******Claim Objections***

Claim 1 objected to because of the following informalities: "for determining a reduction in said positive pressure" in lines 9-10 is grammatically confusing. Does the sensor detect proximity and engagement by determining a reduction in positive pressure? For example, lines 9-10 are more clear written as --and engagement of the interleaf with the end effector, said sensor determining a reduction in said positive pressure--. Appropriate correction is required.

***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the sensor that both detects proximity and detects engagement of the interleaf with the end effector for determining a reduction in said positive pressure as in claim 1 must be shown or the feature(s) canceled from the claim(s). In the alternative, if there is one sensor that detects proximity and one sensor that detects engagements, this also must be shown. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet,

Art Unit: 3652

and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 1 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for an engagement sensor (Page 8, line 1, Page 9, line 30, Page 10, line 22) and a proximity sensor (Page 10, lines 16-17 & Page 13, line 6), does not reasonably provide enablement for one sensor that detects proximity and engagement as required in claim 1, lines 8-10. It is well known that negative pressure is comprises an inward pulling vacuum by a cup/orifice where positive pressure is the reverse pulse of air delivered from a vacuum orifice/cup outward. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make/use the invention commensurate in scope with these claims.

Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. With respect to claim 1, lines 8-10 one sensor that detects both proximity and engagement was not previously disclosed within the application.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. While claim 1 requires a sensor that detects both proximity and engagement the specification Applicants specification discloses two sensors to accomplish the two functions.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 6, 7, 8 & 12-14, are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichikawa (JP 11163091) (previously cited) in view of Eberle (US 4,784,380).

Art Unit: 3652

With respect to claims 1, 6-8, & 12-14, Ichikawa disclose a first robotic arm 4, second robotic arm comprising a transfer arm 5 having first and second ends, end effector 80 attached at a second end, and controller. Ichikawa discloses an end effector that can catch and release an interleaf surface, and does not disclose a applying a positive pressure to an interleaf surface facing an end effector or a sensor to detect proximity and engagement.

Eberle discloses an end effector attached to a robotic arm configured to apply positive pressure to a surface of an item facing an end effector 11a-k and having a sensor that senses differential pressure to detect a proximity and engagement with an end effector 11a-k for determining a reduction in positive pressure. C8/L20-60. Eberle teaches reduction in complexity of unstacking battery plates as it is no longer necessary to place the topmost layer of a stack be "positioned at a certain fixed distance with respect to the vacuum pickup in order to achieve successful withdrawal therefrom" and enables "the vacuum pickup to remove the lead plate without disturbing the other plates." C1/L32-51. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Ichikawa's end effector to include applying a positive pressure to an interleaf surface facing an end effector or a sensor to detect proximity and engagement, as per the teachings of Eberle, to improve on singling a top layer from the stack below.

2. Claims 2, 9-11 & 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichikawa (JP 11163091) (previously cited) in view of Eberle (US 4,784,380) and Petvai et al. (US 5,569,328) (previously cited).

With respect to claim 2, 9-11, Ichikawa discloses a transfer arm having a first end and second end, and does not disclose a counterweight. Petvai discloses a counterweight 17 attached to a first end of a transfer arm 18 for the purpose of balancing a transfer arm (C4/L37-39). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the transfer arm of Ichikawa to include a counterweight, as per the teachings of Petvai, to balance a transfer arm.

With respect to claims 25-26, Ichikawa discloses an end effector configured to apply variable forces.

3. Claims 15, 17 & 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichikawa (JP 11163091) (previously cited) in view of Vits (US 3,993,301) and Petvai et al. (US 5,569,328) (previously cited).

With respect to claims 15, 17 & 27, Ichikawa disclose a first robotic arm 4, second robotic arm comprising a transfer arm 5 having first and second ends, end effector 80 attached at a second end, and controller. Ichikawa discloses an end effector that can catch and release an interleaf surface, and does not disclose a counterweight or applying a positive pressure to an interleaf surface facing an end effector.

Vits discloses an end effector 1 that applies a positive pressure to an interleaf surface (C2/L36-44). Vits teaches that positive pressure causes the top sheet of paper, e.g. interleaf, "to be raised so that it abuts the flat surface of the [end effector]". Vits teaches that within the art of singulating sheets from the top of a stack, merely applying a negative pressure to suck the top sheet is not enough as there is a "high probability

Art Unit: 3652

that, apart from the top sheet, sheets positioned directly therebelow are also raised”.

C1/L20-30. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the end effector of Ichikawa to include positive pressure, as per the teachings of Vits, to lift only one sheet.

Petvai discloses a counterweight 17 attached to a first end of a transfer arm 18 for the purpose of balancing a transfer arm (C4/L37-39). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the transfer arm of Ichikawa to include a counterweight, as per the teachings of Petvai, to balance a transfer arm.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-2, 6-14 & 25-26 have been considered but are moot in view of the new ground(s) of rejection. Applicant's arguments filed 15, 17 & 27 have been fully considered but they are not persuasive. Vits discloses a pneumatic separator where pneumatic is commonly known as air. Vits discloses air at column 2, lines 36-44 as “passing from the internal conduit passes outwardly through the arcuately shaped channel cutout in a radial direction...striking] the top surface of a top sheet of material causing the same to be raised so that it abuts the flat surface of the foot member.”

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP



Art Unit: 3652

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

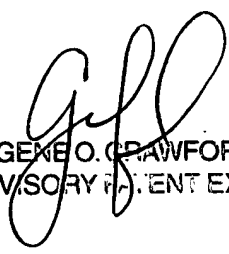
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory W. Adams whose telephone number is (571) 272-8101. The examiner can normally be reached on M-Th., 8:00-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene Crawford can be reached on (571) 272-6911. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3652

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

GWA

  
GENE O. CRAWFORD  
SUPERVISORY PATENT EXAMINER